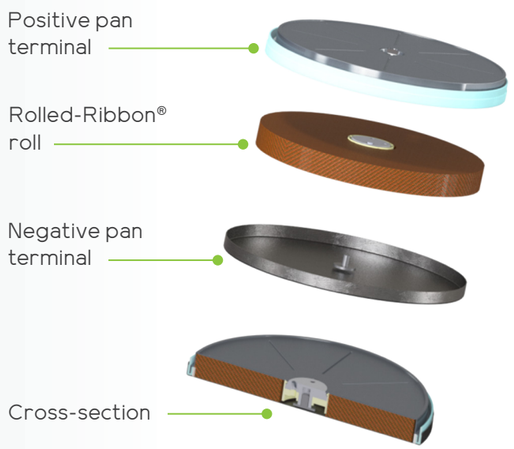
Rolled-Ribbon® Cell Construction

Continuous contact between the edge of the current collectors and the cell terminals
Lowers impedance, lowers thermal resistance, vastly improves thermal exchange

Solid internal cell structure
Better suited to handle shock and vibration

Hard case construction
Rugged and durable, does not require additional protective hardware



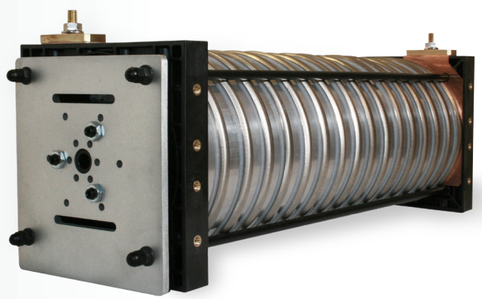
Rolled-Ribbon® Stacked-Cell Battery Construction

Column structure:
Mechanically rugged battery pack

Direct ohmic contact between compressed cell faces:
No need for tabs or welding

Configurable series and parallel (S, P) arrangement of cells:
Tailored battery pack voltage and capacity

Re-usable battery pack hardware:
Simple cell removal and repurposing



Rolled-Ribbon
BATTERY COMPANY

www.rolled-ribbon.com

+1 (512) 387-2553 | info@rolled-ribbon.com | 14141 W Highway 290, Bldg #400, Austin, TX 78737 USA

The NEW STANDARD for High-Power

High-Capacity Li-ion Batteries

The ROLLED-RIBBON® Cell Design

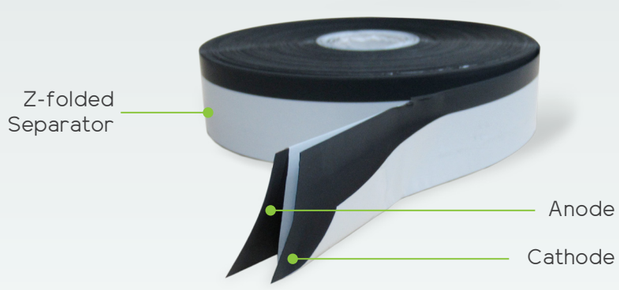
The stackable cell design lends itself to scalable, compact battery pack designs.

Large format cells maximize power and minimize both heat generation and thermal gradients.

THE ROLLED-RIBBON® DESIGN ultimately leads to an overall increase in the cell's in-cycle performance — its efficiency and enhanced rate— and its cycle life.

- Use more capacity
- Deliver higher power
- Charge faster
- Replace less frequently

Rolled-Ribbon® Roll Construction

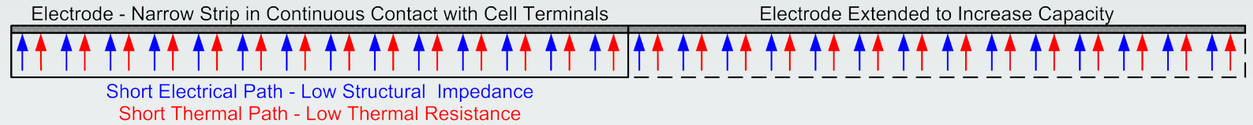


A Rolled-Ribbon roll consists of long, narrow cathode and anode strips – "ribbons" – that are tucked into separate folds of a long length of separator folded into a Z-shape and together spiral wound.

The result is a roll having on each face a different electrode presenting its edge – a "continuous tab" – to make contact with the inside surface of the respective cell terminal.

For Cell Construction, see the back page.

Rolled-Ribbon® Cells have a "continuous tab" current collector contacting the cell terminal surface



Low impedance

- Better power capability: fast-charging, high-power delivery
- Less waste heat generation: lower thermal management challenges and accompanying energy needs
- More efficient energy conversion: more capacity, energy, power

Unparalleled Thermal Properties

- Low thermal resistance axially through the cell, extending through the battery cell stack
- Large thermal exchange surfaces on terminals of the cell
- Uniform heat distribution (no "hotspots")

Maximum Power Delivery

- Charge at 2C (many times faster than other cells)
- Deliver at 5C
- Pulse (short-duration) up to 10C

Minimum Heat Generation

- Extend cycle life by naturally keeping cell temperature low
- Eliminate added thermal management systems and associated component and energy costs

Conventional Cells (cylindrical, pouch and prismatic, stacked or wound) use narrow tabs between the current collectors and the cell terminals